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A method and apparatus are provided for generating short (e.g., picosecond) pulses using a 2 section 1553 nm DBR laser without gain switching nor external modulation. The center wavelength of the DBR section is modulated at 0.5 GHz to generate a constant amplitude frequency modulated optical wave. Large group velocity dispersion is then applied with a chirped fiber Bragg grating to convert the FM signal to a pulse stream.